

Space News Roundup

Vol. 24 No. 13

July 19, 1985

National Aeronautics and Space Administration

News Briefs

MLR spheres sold

Microscopic latex spheres made aboard early Space Shuttle flights are now for sale. NASA and the National Bureau of Standards announced this week. "This material is the first of what we expect will be a long line of products to carry a made-in-space label," Administrator James M. Beggs said. The billions of polystyrene spheres, measuring 10 micrometers (1/2500th of an inch) in diameter, are being sold as standard reference materials. They are used to improve microscopic measurements in a variety of industries, from electronics to cosmetics. The NBS packages the material in 5-millimeter vials which contain 30 million spheres each. The price is \$384 a unit, with proceeds shared equally by NASA and NBS.

Giotto Halley bound

The European Space Agency's Giotto deep space probe, the first in the history of the European space program, is on its way to Halley's Comet. After launch aboard an Ariane 1 July 2, Giotto orbited the Earth three times before a 60-second rocket firing pushed it toward deep space. Giotto is targeted to pass within 300 miles of the nucleus of the comet during a close encounter on March 13, 1986.

Robotics meet set

The American Institute of Aeronautics and Astronautics and NASA will co-sponsor a symposium, "Automation, Robotics and Advanced Computing for the National Space Program," to be held Sept. 4-6 in Washington, D.C. The symposium is designed to provide a forum for government, university and industry executives to discuss the need for and approaches to adopting this advanced technology for the space program. Speakers will include NASA Administrator James M. Beggs, Sen. Jake Garn and Robert S. Cooper, director of the Defense Advanced Research Projects Agency (DARPA). For more information, contact Louis P. Clark at NASA Headquarters, (202) 453-1883, or Pamela Edwards at the AIAA, (212) 408-9778.

IUE sees comet

As the International Cometary Explorer (ICE) speeds towards its historic encounter with Comet Giacobini-Zinner, another NASA satellite has made the first observations of that comet from space. The International Ultraviolet Explorer (IUE) made the observations in June while the comet was 87 million miles from Earth on the inbound leg of its orbit between the Sun and the vicinity of Jupiter. A complex series of maneuvers have sent the ICE probe on a course to perform the first comet encounter Sept. 11 at a distance of 44 million miles from Earth.

About submissions...

Civil Service and contractor employees interested in advertising in the Roundup Swap Shop are reminded that submissions must be placed on a JSC Form 1452, available from the Forms Office, Distribution Operations. The one group excepted from this rule is NASA retirees, who may submit the ads as always, preferably on an 8 1/2 x 11 sheet of paper. For all other advertisers, a Form 1452 is necessary, and can be obtained through normal requisition procedures. The cooperation of our advertisers in following these guidelines is greatly appreciated.



The Weightless Wonder IV, NASA's micro-g simulator aircraft, engenders few lukewarm reactions — you either like it or you don't. Barbara Morgan of McCall-Donnelly Elementary School in McCall, Idaho, was decidedly in favor of the experience. Morgan was one of 10 teachers at JSC last week undergoing training for the flight of the first teacher in space early next year.

51-F launch rescheduled

Program officials have now targeted late July for the launch of STS 51-F/Spacelab 2 following an on-the-pad engine shutdown which aborted the launch July 12.

At press time, it was believed the impact to other missions on the Shuttle manifest would be minimal.

The launch pad area was reopened at 6 a.m. EDT Sunday, July 14, and work began to remove the suspect main engine hardware thought to be the cause of the abort. Technicians inspected the No. 2 Main Engine controller and wiring harness, then removed the chamber coolant actuator and the chamber coolant valve.

On July 15, initial testing began on those components, using the same engine controller and wiring harness that were in place during the July 12 launch try. All systems functioned normally in the tests.

The focus of the turnaround effort for *Challenger* is the routine servicing required for the Orbiter's main engines and main propulsion system. The same procedures are required that would be necessary had *Challenger* actually flown.

With four Orbiters now at the Cape (see related story, this page), two mobile launcher platforms and one crawler/transporter available, the launch team will be moving Shuttles around over the next few days. *Atlantis* will be moved to High Bay 2 of the Vehicle Assembly Bldg. to await a flight readiness firing which now will be rescheduled. *Discovery* will be hoisted atop the stack which had been planned for the *Atlantis* FRF, then moved to Pad 39A for her August 24 launch and the 51-I mission. *Columbia* then will be moved to Hangar Bay 2 of the Orbiter Processing Facility to be readied for her launch on Mission 61-C.

The STS 51-J mission with *Atlantis* is expected to slip several days up to two weeks, officials said.

Mars beckons

Manned Mars mission could foster cooperation, Beggs says

A manned mission to Mars in the next century could "redirect creative human brains from the prospects of dealing with armed conflict to the prospects of planning and carrying out a peaceful... program of unprecedented scope and magnitude," NASA Administrator James M. Beggs said July 16.

Speaking at a panel discussion, "Humans to Mars — Why?" at the National Air and Space Museum

in Washington, Beggs predicted that "we could be enroute to Mars before the middle of the next century."

By that time, he said, "using as our springboard the Space Station and its infrastructure, which will include an inter-orbital transportation system, we may very well have established a manned lunar base. Mars would be the next logical niche for human expansion in the universe."

Attention focused on the Red Planet during a seminar sponsored by the Planetary Society and the American Institute of Aeronautics and Astronautics, and one of the underlying themes was international cooperation. The seminar, "Steps to Mars," sparked discussion of a multinational expedition which some said could be mounted before the turn of the century. Other participants said such exploration is more likely somewhere

in the 2020 to 2030 time frame.

"Given the enormous scope of such an effort," Beggs said, "the resources required and its benefits to all mankind, it is tempting to say outright that it should not be done unilaterally. Nevertheless, if the commitment and the resources were forthcoming, nothing would preclude a technologically sophisticated and dedicated nation from going it alone."

(Continued on page 2)

Columbia returns to the fleet

It was like a gathering of eagles at the Kennedy Space Center last week as all four Orbiters in the Shuttle fleet were gathered in one location for the first time.

The gathering came as *Columbia*, the flagship of the Space Shuttle fleet, returned for operational duty after an 18-month modification process in California.

Columbia has undergone hundreds of modifications to reconfigure the ship from a develop-

mental flight vehicle to a fully operational orbiter.

Columbia flew the first five Shuttle missions and was modified at the Kennedy Space Center for the October 1983 Spacelab 1 flight. Following her return to KSC after STS-9 and removal of the Spacelab 1 payload, *Columbia* was ferried back to California atop the 747 Shuttle Carrier Aircraft in late January 1984.

Five major modifications to the

ship were performed during her stay at Rockwell International's Orbiter Production Plant at Palmdale:

- Structural beefup modifications to the wings and midfuselage included the addition of doublers on the lower wing surfaces and installation of heavier straps across the ship's belly.

- A Heads Up Display (HUD) was added to the forward flight deck to allow the Shuttle Com-

mander and Pilot to view critical flight information on a see-through panel while they look through the forward cockpit windows.

- The Commander and Pilot ejection seats which had been installed on *Columbia* for the initial development Shuttle flights were removed and replaced with standard seats. Also removed as part of this modification were the overhead blowout panels.

(Continued on page 2)

ShopTalk

Two receive JSC Scholarship

The 45th and 46th dependents of JSC employees have been awarded scholarships under the NASA Exchange-JSC Scholarship program.

Each scholarship provides \$4,000 — at up to \$1,000 a year — for study at any college or university.

Gwen Snyder, daughter of Joseph Snyder of the Spacecraft Software Division, and Sydney Beckham, daughter of Robert Beckham, also of the Spacecraft Software Division, were the scholarship recipients.

Snyder is a May 1984 graduate of Clear Lake High School and is currently a freshman at Arizona State University. She was sixth out of 675 in her high school graduating class with a 4.3 GPA. She has earned all A's to date at Arizona State.

She was active in various clubs, sports and church while at Clear Lake High, and is now



Snyder

active in volleyball and the chorus at college. Her major is business.

Beckham, a May 1985 graduate of Dobie High School, was ranked in the top six percent of her class and has never had a grade less than A in high school.

She has won scholastic awards and was active in various clubs and crafts at Dobie High.

Beckham plans to enroll at Baylor in the fall in elementary education.

The scholarship program has been continuously offered by the JSC Exchange since 1967. The criteria for selection are overall scholastic achievement, extent of financial need and the breadth and substance of school and community activities. The application period for next year's scholarships will be announced in February, 1986. For this year's scholarships, 31 applications were received.



Beckham

JSC's Manned Flight Awareness Program recently selected members of the NASA Employee Team (NETS) program here to attend the launch of 51-D. This marked the first occasion that NETS were selected as a group to participate in launch honoree activities. "Plans are to make this an annual event," said NETS coordinator **Alma Martin**. For most of the JSC NET members who had not seen a launch, it was a once in a lifetime experience, Martin said. "They were impressed with the VIP treatment and really enjoyed themselves," she said. The honorees were **Leroy Underwood, Tom Raines, Jesse Atkins, John Heckler, John Duncan, Al Cornelius, Tim White, Barbara Beasley, Jennie Harper and Teresa Sullivan**.

The road from engineer to poet is one not often taken, but **Jerry Elliott** of JSC is an exception. Elliott, the project engineer for crew equipment in the Shuttle Projects Office, was recently featured in "From Hide and Horn," a poetic anthology celebrating the Texas Sesquicentennial. The anthology of Texas poets focuses on each of the one hundred and fifty years of Texas statehood from 1836 to 1986. Elliott has been writing seriously for about 20 years. At the Second Houston Festival in 1981, he was a finalist in the City of Houston creative writing competition. In 1982, he won two first place awards and several other awards in state competition. He is the author of 5 short stories and "about 11 unpublished books," 3 of which he illustrated with his own artwork. One of his poems is "July 20, 1969," which he wrote the day Armstrong and Aldrin landed on the Moon. "I remember that the poem came over me like flicking a switch," Elliott said. "I thought, 'we have lost now the mystery of the Moon.'" In an age of word processors and computers, Elliott composes with pen and paper and finds that he has to do it at all hours. "I write what comes to mind — recorded thoughts, really — and I have to write it down or its gone forever. To sit and create from a mechanical standpoint is not really writing."

Top end is one mile per hour, but for a vehicle that weighs 6 million pounds, that's sports car performance. That was the con-



JSC Director Gerald D. Griffin snipped the ribbon for a new 1/2 mile running track at the Rec Center recently, officially opening the new facility. Griffin said exercise is a good way to unwind after a long day in the space business and invited employees to take advantage of the new track. Looking on is JSC Physical Fitness Coordinator Larry Wier.

clusion, at any rate, of Road & Track Magazine's **Dennis Simanaitis**, who recently did a tongue in cheek road test of KSC's crawler transporter. "I've never seen anything that massive," he said. "You could play a soccer game on its top or practice baseball. The lovely irony about the whole thing is that the quickest of man's inventions, the Shuttle, depends on a vehicle that's the slowest." Road & Track carried a complete list of specs for the crawler, from base price to road test results and fuel economy. They even came up with an automotive-type name for it. By adding the cubic centimeter displacement of each of the crawler's six engines, the magazine came up with the name "KSC 554,756 Hardtop."

NASA's reputation for innovation is still secure. The Public Services Branch, needing some form of weather protection for the delicate electronics at the tip of their new 5-meter earth station antenna in front of the Visitor Center, turned to in-house exhibits wiz **Bob Luke** of Omniplan for a solution. Luke's down-to-Earth fix: a plastic trash can. "You can't argue with success," said Public Services Chief **Chuck Biggs**. Strangely enough, the trash can does look like it belongs there from a distance, and only a few visitors, inspecting the antenna

up close, have wondered at Rubbermaid's entrance into the high tech satellite communications market.

S. Neil Hosenball, NASA's general counsel since 1975, will retire Aug. 2 to become Director of the University of Colorado's new Center for Space Law and Policy. In addition to guiding the University in its research efforts, Hosenball will be teaching a course in space law for the law school. Hosenball was NASA's deputy general counsel from October 1967 until he assumed his present position in 1975. **John E. O'Brien**, NASA's deputy general counsel, will be acting general counsel.

Out of 207 applicants, Indonesia has selected 12 people for further consideration toward the flight of that country's first payload specialist on STS 61-H, now manifested for June of next year. The list of 12 people includes four females. Plans call for that list to be shortened to 4 or 5 candidates who will then come to JSC in August for Phase III candidate selection. Indonesia plans to announce the prime payload specialist candidate in September or October.

NASA Scholarships awarded

The son of a JSC employee was one of two students selected for this year's NASA College Scholarship.

Timothy Bruce Boykin, son of Dr. Wilbur R. Boykin of the Life Sciences Project Division, was awarded a scholarship under a program endowed by author James A. Michener.

Applications were restricted to dependents of NASA employees who are planning to major in science or engineering fields. Some 127 applications were received this year from all of NASA's field centers and installations.

Boykin is a 1983 graduate of Clear Lake High, where he ranked first in a class of 708. He had a 4.0 grade point and scored 1430 out of 1600 on the SAT test. He is currently enrolled as a sophomore at Rice University pursuing a degree in electrical engineering. He plans to pursue that course of study through the Ph.D. level.

The other recipient was John

T. Birmingham, son of Goddard Space Flight Center employee Thomas J. Birmingham. He graduated in June 1985 from Springbrook High School in Silver Spring, Maryland, ranking first in a class of 480. He plans to pursue a career in physics with study at Princeton University beginning this fall.

The NASA College Scholarship Fund, Inc., was established in October 1982 as a nonprofit private foundation for the purpose of awarding scholarships to the dependents of NASA employees. The endowment was established by a substantial gift by James A. Michener. Other benefactors have since made contributions to the fund, including NASA Employees who have utilized the designation method in their center's Combined Federal Campaign.

To date, the fund has awarded six scholarships to young people from four NASA centers. Tax deductible contributions may be made to the fund at mail Code BY5 at JSC.

"Clearly, Mars will have priority in any manned solar system exploration program because it offers the least severe environment for humans. Due to its atmosphere, its accessible surface, its probable availability of water and its relatively moderate temperatures — they range from -120 C to +20 C — it is the most habitable of all the planets other than Earth. Moreover, Mars resources include materials that could be adapted to support human life, including air, fuels, fertilizers, building materials and an environment that could grow food."

The Administrator said any exploration program "must be viewed as a long-term commitment." The first Mars landing, he said, would have to include plans for later missions. "The first Mars explorers probably will not become permanent residents. Rather, they will set the stage for others to come. For others will come: to build, to live, to work, to learn and above all, to explore with their own hands and eyes and tools this exciting and unknown world."

Beggs said the Agency would continue to study Mars with unmanned probes. "In 1990, for example, we expect to launch the Mars Observer, which will do global mapping of Mars for a full Martian year, which is equal to two Earth years. We will focus on geoscience and climatology. Later, unmanned spacecraft will surely focus on other science missions — such as the planet's upper atmosphere, its magnetic field, its seismology. And more ambitious

unmanned projects would, most likely, return Mars samples to Earth."

Beggs said a manned expedition could "unleash all the richness and subtlety" of the human mind. "Why not go to Mars to stimulate progress in our own space capabilities, to develop new cutting edge technologies — propulsion, life support, habitation, non-terrestrial resource use? These will not only get us to Mars, but also leaven their benefits on Earth."

"And finally, why not go to Mars to build on the framework for international cooperation the Space Station will have begun and, perhaps, a manned lunar base will have continued? An immensely challenging program such as a manned Mars mission could be a strong force for peace in the world. Ironically, Mars, the primitive symbol of the God of War, could become a powerful instrument for peace."

Columbia joins sister ships

(Continued from page 1)

• *Columbia's* two Orbital Maneuvering System pods were modified to make them compatible with the other orbiters of the Shuttle fleet, and the thermal protection tiles on the pods were replaced with the advanced reusable surface insulation blankets.

• Supplemental instrumentation to gather developmental engineering data was installed.

In addition to these modifications, approximately 5,000 of the ship's high temperature thermal tiles were removed from *Columbia's* belly and replaced after engineering analysis indicated several areas where greater heat protection was desired.

Another major work item involved the removal and modification of about half of the wing leading edge panel assemblies. The modification strengthened the

supporting structure of the reinforced carbon-carbon panels.

An infrared imaging device has been installed on *Columbia's* vertical stabilizer to provide a temperature profile of the upper wing surfaces during reentry and instrumentation has been added to the nose cap to provide improved entry air data.

Columbia's next flight is presently manifested as Mission 61-C in December.

Symposium focuses on Mars exploration

(Continued from page 1)

Sen. Spark Matsunaga, (D-Hawaii), proposed that 1992 be declared an International Space Year, patterned after the 1957 International Geophysical Year. "Let's advance and involve as many nations as possible," he said.

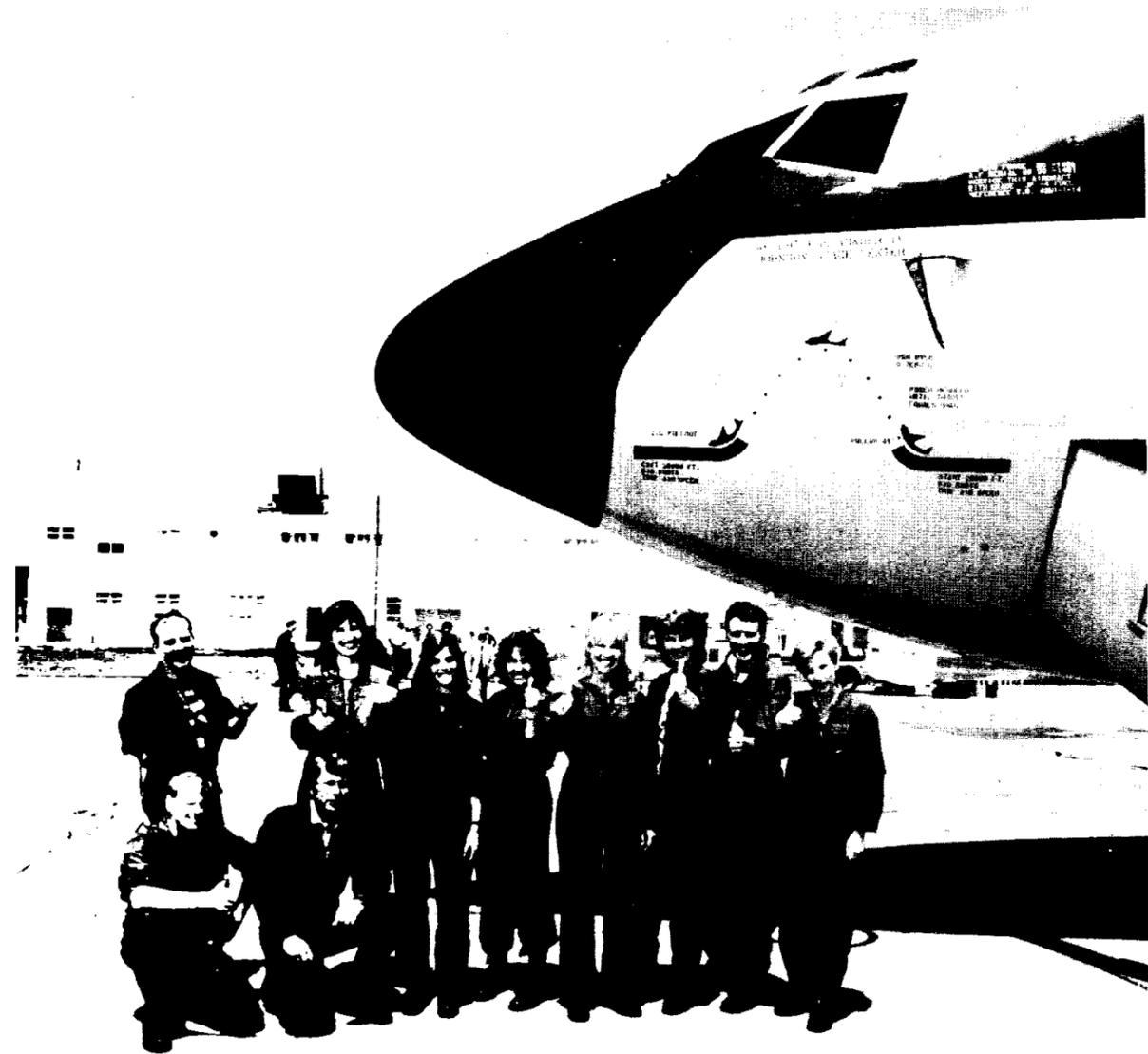
Beggs said it was appropriate to be discussing human journeys to Mars on July 16, the tenth anniversary of the Apollo-Soyuz docking in space. "That mission was the last to employ a manned Apollo spacecraft. Apollo opened the floodgates of the human imagination to the exciting possibilities of people exploring the universe. Science fiction became science fact because we demonstrated conclusively that humans could, indeed, leave Earth, land on another world and return safely to their mother planet."

Beggs said Mars is "most likely the first" planet humans will explore after the Moon because it is more like the Earth than any of the other planets in the solar system.

Spaceflight 101: Teachers go to class



A week at JSC got top grades from the 10 teachers who are finalists to become the first citizen in space. "NASA's training is not adequate—it's superb," Richard Methia of New Bedford, Mass. told United Press. "If we were to grade, we'd give these guys and gals an A-triple-plus." The week's activities included the usual methodical physical, Shuttle orientation training, a psychological exam ("They want to make sure we don't pull a knife on the Shuttle commander," one teacher said.) and, to cap the week off, a ride aboard Weightless Wonder IV, the KC-135 Zero-G aircraft. The teachers also got a taste of the media attention common to space travelers as Peggy Lathlaen of Friendswood experienced (right). "One of the most outstanding things in this whole experience is that fewer than 200 people in the world have ever gone into space," said Michael Metcalf of Greensboro, VT. "The fact that this country is going to send a common citizen is a pretty thrilling idea."



Gilruth Center News

Call x3594 for more information

Auto repair — Learn to diagnose minor problems with your car before they become major. This class runs from 7:30 to 9:30 p.m. beginning Aug. 7 and over an 8-week period will cover such topics as engine theory, preventive maintenance, normal upkeep and tune ups. The cost is \$25 per person.

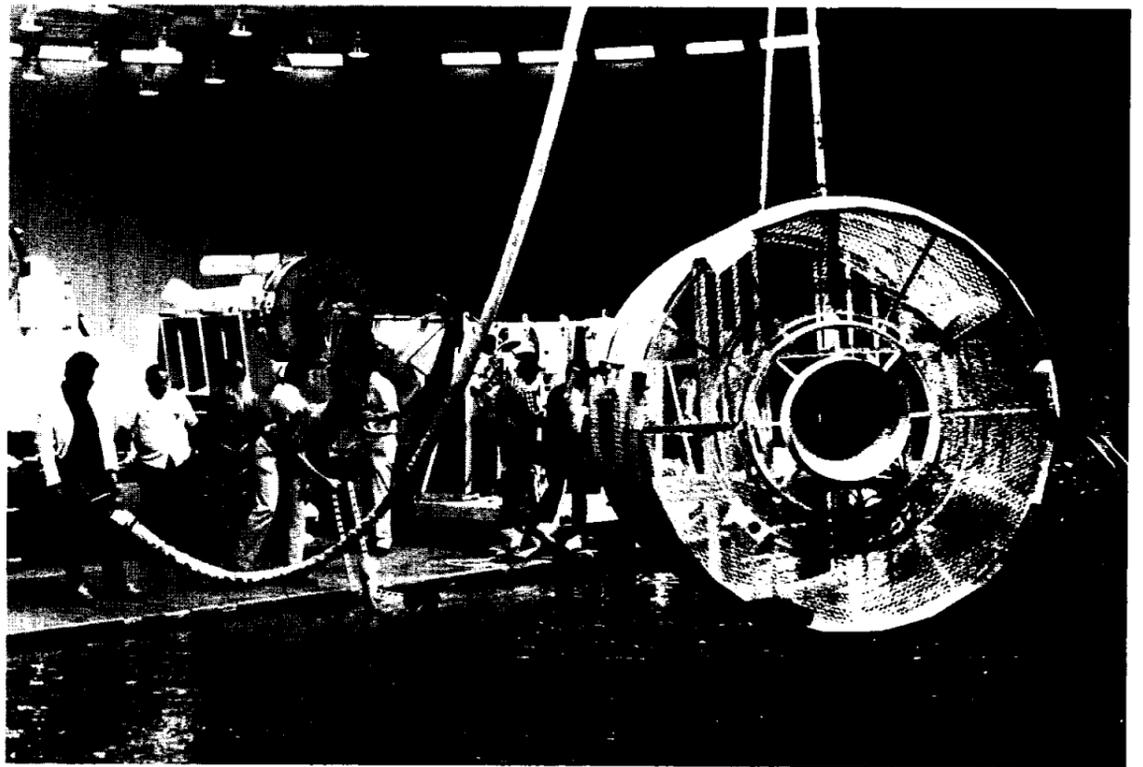
Pest control — Learn how to spray your home, what chemicals to buy and how to safely and effectively apply pesticides. This class meets for one night, Aug. 8 from 7 to 10 p.m. The cost is \$7.50 per person.

Tennis lessons — Both beginning and intermediate tennis classes will be offered in August. Beginning tennis will stress fundamentals such as forehand and backhand service, body movement and conditioning. Intermediate level sessions will focus on spins and spin service and netplay. Beginning lessons start Aug. 5 from 5:15 to 6:45 p.m. Intermediate lessons begin Aug. 7 at the same times. The classes meet for 8 weeks and the cost is \$28 per person.

Ballroom dance — Learn the basics of such steps as the rhumba, foxtrot, cha cha and the waltz. Beginners dance from 8:15 to 9:30 p.m. beginning Aug. 1. Intermediates will dance from 7 to 8:15 p.m. beginning Aug. 1. Both classes meet for 8 weeks and the cost is \$60 per couple, no individual registration.

Table tennis tourney — The annual singles table tennis tourney will take place from 11 a.m. to 4 p.m. Aug. 24. Trophies will be awarded to the top three finishers. The entry fee is \$2 per person and the deadline is Aug. 21. For more information, call Helen at x3594.

Ladies weight training — This popular course begins Aug. 5 and runs for 4 weeks. The class meets Mondays and Wednesdays from 7 to 8 p.m. The cost is \$20 per person and there is limited enrollment space.



A model of the Syncom satellite which the crew of STS 51-I will attempt to fix in August is lowered into the WET-F as preparations for that mission continue. The STS 51-I launch date is scheduled for August 24.

Roundup Swap Shop

All Swap Shop ads must be submitted on a JSC Form 1452. The forms may be obtained from the Forms Office. Deadline for submitting ads is 5 p.m. the first Wednesday after the date of publication. Send ads to Roundup, AP3, or deliver them to the Newsroom, Bldg. 2 Annex, Room 147. No phone in ads will be taken.

Property & Rentals

For sale or lease: Lakeshore condo, 2-2-2, waterfront, W/D, two storage areas, pier, pool, split BR plan, available now. \$495/mo. plus deposit, \$57,700. Call Bob, 280-3655 or 484-3318 after 6 p.m.

For rent: Galveston/Tiki island, 3BR home on canal, dock your boat, fish, swim, TV, master bath spa, week-end and monthly rates. Call 486-9335.

For sale: Horseshoe Lake Estates, Royomar, TX, AC, fully furnished, one acre on small fishing lakes, Trinity River. Call Susan Peterson, x3138 or 479-5594 after 5 p.m.

For sale: League City/Newport, 3-2-2, FPL, cathedral ceiling, formals, utility, beautiful home, \$69,900. Call 332-2291.

For sale or lease: Greenspoint Mall area, 3-2-2, large master, dining, breakfast, new carpet/paint, FPL, central air/heat, trees, area pool, sell \$54,000, reduced \$5,000, lease \$450. Call Jan, 486-4420 x409 or 484-6286.

For lease: Baywind I condo, 3-2-2, ground floor, stove, refrigerator, W/D connect., FPL, two pools, exercise room, party room, \$475. Call Clarence, x3643 or 333-4381 after 4 p.m.

For sale: Austin, two BR, all kitchen appliances, ceiling fan, private balcony, \$44,900. Call 482-7910.

For sale: Middlebrook II, 4-2-2a, contemporary design, open floor plan, vaulted ceiling in living room, well maintained, \$92,900. Call Ron, x3821 or 488-7387.

For sale: Egret Bay, two BR, corner lot, all appliances, extra, \$43,000. Call 480-0447 after 5 p.m.

For sale: Brazoria county, enjoy the serenity of lakefront property under producing pecan trees, low 30's, 12% assum. Call Don, 280-6307 or 554-6205.

For sale: Forest Park Cemetery, three choice spaces, 1-45 at Southpark, League City, \$3,000. Call Nita, x5081 or 996-1429 evenings.

For sale: Two BR mobile home, new carpet, tile, perfect starter home or vacation cabin, appraised at \$9,700, first \$7,500 accepted. Call 332-2291.

For sale or lease: League City, nice 3-2-2, fenced yard, all electric, \$425/mo. or \$46,500. Call 481-6453.

For sale: 25.6 heavily wooded acres near Centerville, TX, deer abound, timber potential, \$1,450/acre. Call Musgrove, x3566 or 488-3966.

For lease: CLC Camino South 3-2-2, lovely brick home, split BR, FPL, \$575/mo. plus deposit. Call Lyn Amann, x4415 or 333-2359.

For lease: Forest Bend townhouse, 2-1.5, ceiling fans, patio, \$395/mo. Call Betty Craig, x4031 or 420-2936.

For lease: El Dorado Trace, 1 BR, study, W/D, \$395/mo. Call Faye, 280-3695 or 486-4945.

For lease: Nassau Bay townhouse in Queens Court, 3-2-5-2, garage door opener, FPL, drapes, all kitchen appliances, ceiling fans, atrium, courtyard, pool. Call Myron, x2386 or 482-4778 after 5 p.m.

For sale: Dickinson 3-2-2 executive colonial style home, custom cabinets, both formals, wet bar, FPL, master bath w/ his and her walk-ins, huge deck off den, perfect for entertaining. Call Melody, x2731 or 534-3991.

For sale or lease: League City 2 or 3 BR custom townhouse, 2.5 bath, W/D, refrigerator, dishwasher, microwave, paid lawn care, pool, jacuzzi, quiet area. Call Mike, 280-4313 or 554-6378.

Cars & Trucks

1979 Buick Electra, Pk. Ave., low miles, ex. condition, \$4,450. Call 474-4535.

1982 Mercury Cougar, PS, PB, cruise control, AM/FM, cassette stereo, air conditioned, 30K miles, \$4,300 or \$184/mo. Call Chris Liput, 333-3027.

1982 Mustang GT, silver w/black trim, red interior, sunroof, AM-FM stereo cassette, excellent condition. Call Cheryl, 554-5471 or 644-0499.

1941 Plymouth, 80% restored, engine overhauled, upholstered and painted, all original. Call 943-3385.

1977 Pinto sports edition, three door, AC, PS, stereo, no dents or rust, \$1,490. Call Briggs, x5165 or 333-2717 evenings.

1981 Toyota Celica GT, 5 spd., cruise, AM/FM, AC, light metallic blue, high mpg, 47,000 miles, \$4,950. Call 333-6661 or 481-6453 evenings.

1981 Ford Mustang, two dr., 4 cyl., AC, PS, very good condition, clean. Call 482-5706.

1974 Monte Carlo, new tires, AC, PS, PB, 350 cu. in., two bbl engine, cruise control, 98K miles, includes \$400 Sony sound system, \$1,850. Call Robin Friedrich, 486-4587.

1977 Firebird Formula, T-top, new paint, new tires, AC, PS, PB, AM/FM cassette, a beauty. Call 337-1160.

1982 VW Scirocco, AC, AM/FM cassette, 5 speed, garaged, excellent condition, 26K miles, \$6,800 OBO. Call 538-3458 or x4267 evenings.

1975 Jeep, 40" x 18" tires, chrome spokes, dual gas tanks, three tops, posi-trac, roll bar, grill guard, heavy duty suspension, extra engine, \$2,500. Call Quinn, x4171 or 482-2821.

1980 Jeep CJ7, hardtop, soft top, A/C, heavy duty alternator, Renegade package, 30K miles, excellent condition, \$5,600. Call 488-3819 evenings.

1975 Chevy Silverado pickup, 350, auto transmission, power steering, auxiliary gas tank, runs well, \$1,800. Call Betty, x4751 or 482-1369.

1968 Pontiac GTO, 400/400 HP, new paint, 3 spd., Hurst, M21, 355 posi, good condition, \$4,500 firm. Call Mike, 333-2335 evenings.

Boats & Planes

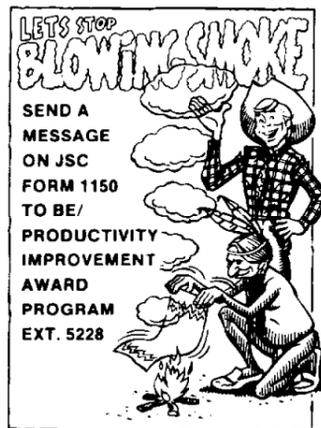
1981 Tidecraft bass boat, 80/hp Mercury, power tilt and trim, aerated live wells, depth finders, trolling motor, etc., \$4,950. Call Don, 280-6307 or 554-6205.

22 ft. MacGregor sailboat, trailer, 9.9 electric Johnson motor, sleeps four, complete with toilet. Bought new at 1984 Boat Show. All accessories, \$6,800. 342-8264. Rosenberg.

14' ski boat, tunnel hull with 90 h.p. merc, engine needs minor work, \$700 or trade for pickup. Call Dan Danley, 280-7413.

14' x 72" wide VW airboat, aluminum hull, electric starting, gauges, lights, trailer, \$1,000. Call Quinn, x4171 or 482-2821.

1975 27 ft. DuFour sailboat. Six sails, Volvo diesel, RDF, dinghy's, outboards, many extras, for sale or trade for bigger boat plus cash. Call Catherine, x3221 or 480-9064.



Cycles

1971 Honda CB450, 2,400 actual miles, wixom fairing, crash bars, carrier, mint condition, \$1,100. Call 486-9335.

1981 80cc Honda motorcycle model, \$175. Call 479-5594 or 479-3161.

1985 Honda ATC 200x, very low hours, \$1,600. Call 479-1242.

Super Mongoose 20" bicycle, all chrome, like new, cost \$320, asking \$175. Call McNeely, x6347 or 482-5837.

Household

Queen-size waterbed, motionless, one year old, \$375. Call Lynne, x6108 or 482-3540.

Platform, swivel rocker, high bring-backed, natural colored, Herculon fabric, excellent condition, \$50. Call Alex Dula, Jr., 538-2299.

Two antique display cases, Grand Rapids equip. Feb. 10, 1914, 24" x 72" x 40", excellent condition, \$300 ea. Call 474-2994 after 5 p.m.

Sofa, two-piece, L-shaped, dark beige, \$400; swivel rattan chair, \$100; 6' x 8' rust rug, \$75. Call 487-1883 after 5 p.m.

China cabinet, exc. condition, maple veneer/glass, brass handles, lower drawers/cabinets for storage, upper glassed for display, interior light, \$95. Call Sue, 486-8016.

Sears portable washing machine, converts to kitchen faucets or machine connection, used one year, bargain at \$100. Call Dorothy Kirsch, x2174 or 333-5450.

RCA Whirlpool 17.5 cu. ft., frost free refrigerator, ice maker, less than a year old, moving-must sell, \$500. Call Alan, 554-6733.

Rattan furniture, two chairs, table, mat, lampstand, fans, \$60 for all; sofa, \$150; loveseat, \$100; cocktail table, \$20; end table, \$20. Call Sashi, x3929 or 482-9476.

Sears gas dryer, \$20. Call Julie, 337-1160.

Stratolounger, brown and beige, good condition and comfortable, \$50. Call Mike, 333-2335 evenings.

Miscellaneous

Gas edger, not working, \$25; Two G78 x 14 tires, good tread, \$10 ea. Call 280-0595 after 4 p.m.

Two Tiffany style stained glass lamp shades, multi-color, red, blue, amber, tulip shape, 15" diameter x 14" high and 13" diameter x 15" high, for hanging table lamp, \$30 each. Call James Poindexter, x4241 or 486-4113.

Coleman 9' x 11' umbrella tent, good cdn., two army cots, good condition, \$10. Call 488-3966.

Rent my motor home by day or week, self-contained with onboard generator, roof air, the comforts of home on wheels, phone Dave, x5111 or 480-0202 after 6 p.m.

Young black cat deserted by owner, \$15 toward having him neutered if you take him home. Call Kellie, 484-0463 or 488-1621.

Four basket wheels, 14 x 6 with a four lug pattern, very good condition, \$80 OBO. Call 480-4688.

Pontiac 400 and 301 engines need rebuilding, 400 headers and extra 400 heads, rebuilt turbo 400 transmission, 7,000 miles. Call Cynthia, x4623 or 337-4754 after 5 p.m.

Kroehler couch, 9 ft., beautiful, \$250; IBM electric typewriter, \$135; Ladies bicycle, used very little, three speed, \$60; 175 National Geographics, \$35 for all; sailing model, and built on stand, two ft. long, \$25. Call 488-5564.

Braided brown rug, 8 1/2 x 11 1/2, never used, \$65; antique sewing machine with electric motor, \$50; 12' x 24' Sears nylon carpet, beige and brown, clean, good shape. Call Jim Poindexter, x4241 or 486-4113.

Camper shell for 1979 Chevy long bed, \$55. Call Cynthia Magnant, x4623 or 337-4754 after 5 p.m.

1977 Datsun pickup, \$900; riding mower, \$400; washer/dryer, \$100/pair. Call after 6 p.m.

1983 model, 50" big screen Mitsubishi T.V., rear projection, walnut cabinet, cable ready, all hook ups, \$2,300 OBO. Call Rita, x3183 or 333-5159.

Magnavox radio & stereo console, pine, good condition, \$100. Call Sharon, x4111.

One pair Moiré satin lined drapes, coffee colored, approximately 116" wide, 86" long, used only four months. Call Sharon, x4111.

6' x 3' solid oak drafting table w/Vemco V-track drafting machine, like new. Call Jeff, 486-1324 or 726-0440 after 6 p.m.

Customize your van, RV, two captain's chairs w/swivel base and mounting hardware, excellent condition, \$95. Call Jack, x6301.

Electric roller machine, like those used in fitness centers, wooden rollers to sit or lean on for firming muscles and relaxation, \$80. Call Janet, x5111.

20 gallon aquarium w/ stand, hood, filter, gravel, heater, plants, rocks and bubble wand, one year old, \$100. Call Janet, x5111.

Aluminum ladder, extends to 35 or 40 ft, excellent condition. Call 488-3819 evenings.

Free kittens. Call 337-1160. RCA color TV, 19", table model, 2 mos. old, all cable channels, wireless remote, new \$389, now \$300. Call 488-5967 after 5 p.m.

Wanted

Wish to find home for crippled kitten, very cute. Call Joan, x3057 or 486-1058 after 5 p.m.

Want pre-1964 25-cent, 50-cent and one dollar U.S. coins, also some late, late Eisenhower dollars, will pay cash. Call 333-6621 or 488-4859 after 6 p.m.

Radio Shack color computer I (grey case) in working condition. Call Doc Pepper, x3581.

Responsible roommate to share house two miles from NASA. Call 474-7481.

Roommate for large 2-2.5 Baywind II townhouse, next to NASA, cable T.V., W/D, private bath, \$240 plus 1/2 utilities. Call 488-8919 after 6 p.m.

Small refrigerator for dorm room. Call Felecia, x5111.

Baby sitting, full or part time, my home or yours, love children. Call 482-4778.

Roommates for home in League City, furnished room with TV, cable, ceiling fan, full house and kitchen privileges, no smoking, pets, children, five miles from NASA, \$210 mo. all bills paid. Call Taeko, 333-6238 or 486-5072.

Temporary ride from Windmill Lakes (Hobby Airport), flexible hours. Call Julia, x5202.

Want ride from Alvin to Bldg. 1, 8 a.m. to 4:30 p.m. shift. Call Sylvia Aragon, x4017.

NASA
Lyndon B. Johnson Space Center

Space News Roundup



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